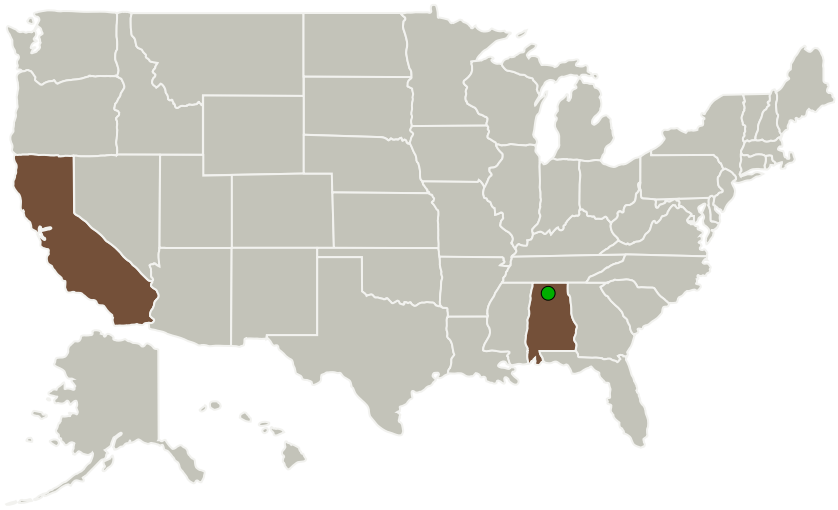
Flexible Production of Geometrically Complex Superalloy Components, Phase II

Completed Technology Project (2012 - 2014)

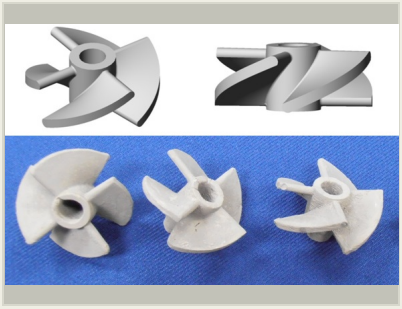
Project Introduction

In order to design and manufacture complex, one-of-a-kind to limited quantity rocket propulsion system components, while shortening the development cycle time and reducing the associated costs, an innovative method must be developed that expands upon current manufacturing technologies. A flexible manufacturing system that can handle the production of such parts in short time periods is desirable. Today's near-net fabrication technologies are extremely limited in design flexibility due to the use of injection molding. Considering the need for design flexibility as well as shorter development cycles, reduced costs, and minimized variance in making one-of-a-kind components, an innovative manufacturing technology will be demonstrated in this work to fabricate geometrically complex superalloy components

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Transition45 Technologies, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Orange, California
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



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Primary U.S. Work Locations	
Alabama	California

Project Transitions

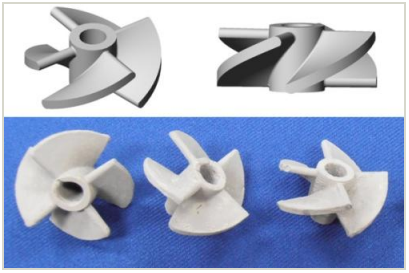
April 2012: Project Start

June 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138093)*

Images



Project Image
Flexible Production of Geometrically Complex Superalloy Components
(https://techport.nasa.gov/image/128047)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Transition45 Technologies, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Edward Chen

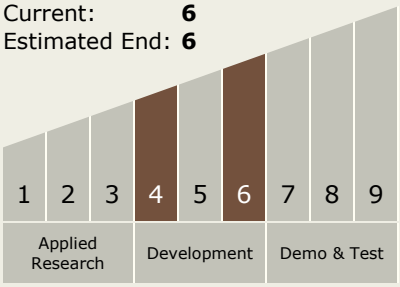
Co-Investigator:
Edward Y Chen

Flexible Production of Geometrically Complex Superalloy Components, Phase II

Completed Technology Project (2012 - 2014)

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.4 Solids

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System